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WORKING PAPER

Using Opportunity to Learn and Early Grade Reading Fluency to Measure School Effectiveness in Ethiopia, Guatemala, Honduras, and Nepal

Executive Summary

School effectiveness is a concept that is difficult to define and even more difficult to measure. To most educational planners, ‘effectiveness’ is the measure of factors that enhance a child’s learning, irrespective of their background. While many models of school effectiveness exist, the Five-Factor model suggests that leadership, acquisition of basic skills, a secure environment, high student expectations, and frequent performance assessment are critical elements of effectiveness (Scheerens, 2000).

This study argues that improvement in school effectiveness requires schools and educators to concentrate on even more basic elements than those posited by the research. This focus should be on providing a basic opportunity to learn (OTL) by having the school open every day, teachers present, and students present and ready to learn. The educational value of that basic opportunity then depends on how teachers and students use the time available during the day, how much time is spent on academic activities, whether materials are present and used, and whether class sizes are reasonable. Further, the study establishes an OTL profile based on 12 factors, including: 1) percentage of days the school is open; 2) teacher attendance; 3) student attendance; 4) percentage of days left for instruction; 5) percentage of time on task; 6) percentage of equivalent days left for instruction; 7) percentage of students with textbooks; 8) percentage of textbook use; 9) percentage of time spent reading; 10) Grade 3 reading fluency; 11) class size; and 12) school support. These indicators measure the extent to which opportunity to learn was optimized in a sample of schools in Ethiopia, Guatemala, Honduras, and Nepal.

The study answers the following questions:

- How well do schools provide opportunity to learn?
- How does actual opportunity to learn compare to potential opportunity to learn?
- How does opportunity to learn vary across countries and schools?

Methodology

Data for the study were collected through first-hand field research in Ethiopia, Guatemala, Honduras, and Nepal, made possible through collaboration with CARE, Save the Children USA, and each organization’s in-country offices. Samples of schools in each country were drawn from those participating in CARE and Save the Children education programs based on stratification by school size and location. Control schools—those not participating in the NGO-supported programs—were also sampled.

Field research teams visited each school and collected data through the use of a series of instruments including: concepts about print (CAP); Early Grade Reading Assessments





(EGRA); Stallings Classroom observation protocols; school observations; and interviews with teachers and principals. The sample included 24 schools in Ethiopia, 26 in Guatemala, 33 in Honduras, and 23 in Nepal. Data analysis included regression, analysis of variance, and factor analysis, along with qualitative analysis of interviews.

Context

The CARE and Save the Children programs in each country have provided a variety of support to the targeted communities and schools for a number of years. In Ethiopia, Guatemala, and Nepal, Save the Children focuses on giving every child the opportunity to attend school. In Honduras, CARE works to secure educational opportunities and quality schooling to children in rural areas.

Students in the study were evenly split by gender in Ethiopia, Guatemala, and Honduras. In Nepal, there were more boys than girls. The average age of students in the study was 10 years. In Ethiopia, however, more than 71 percent of the sample was older than 10 years, compared to 40 percent, 9 percent, and 30 percent in Guatemala, Honduras, and Nepal, respectively. Students in Guatemala, Honduras, and Nepal had higher participation rates in kindergarten (73 percent, 86 percent, and 66 percent, respectively) than Ethiopia where only 28 percent of sampled students attended kindergarten.

Spanish was the only language spoken in the areas visited in Honduras. Of the multi-lingual countries, Ethiopia had the most linguistically homogenous set of students, with 91 percent speaking Afan Oromo. Guatemala had the most diverse group with 34 percent speaking K'iche as their mother tongue (and also speaking Spanish at home), 30 percent speaking Mam, and 25 percent speaking Ixil. Another 11 percent of students in Guatemala spoke only Spanish. In Nepal, the students spoke mainly Nepali and Tharu.

Results

How well do schools provide an opportunity to learn?

Schools in Ethiopia, Guatemala, Honduras, and Nepal were open over 90 percent of school days, and teacher and student attendance rates were fairly high (between 88 and 97 percent). However, time loss due to late starts, early closings, and time-off-task was significant in all four countries. In Guatemala, sample schools used only 72 percent of the available day for instruction because of late starts, early closings, and prolonged breaks for recess. In Guatemala and Nepal, students were on task only 59 and 60 percent of the time, respectively. In Honduras, students were on task 56 percent of the time while in Ethiopia, they were on task only 41 percent of the time.

Across the four cases, when time loss due to school closings, teacher and student absence, and time-off-task were combined, schools on average used less than 50 percent of the equivalent available days for instruction. Expressed in terms of the number of days in the school year, this equivalent time equated to 69 days in Ethiopia, 56 days in Guatemala, 78 days in Honduras, and 87 days in Nepal. For Nepal, the value would

have been even lower if student attendance were taken into account. Ethiopia's value would also have been lower if time-use at school were taken into account.

On average, Ethiopia and Nepal were better at providing language textbooks for Grades 1–3 than Guatemala and Honduras. However, students were observed using these books a very small percentage of the time. Students were also rarely observed reading in class: less than 12 percent of the time in Ethiopia, Guatemala, and Nepal. Oral reading fluency in all countries was low for Grade 3, but was better for Spanish speakers in Guatemala and Honduras. The reading fluency averages for Ethiopia and Nepal of 18 and 26 words per minute (wpm), respectively, were caused by the significant number of Grade 3 students unable to read. Average class sizes were reasonable in all four countries, and schools, on average, reported receiving a sufficient number of support visits during the year.

How does actual opportunity to learn compare with potential opportunity to learn?

The official school year was 203 days (812 intended instructional hours) in Ethiopia, 180 days (900 intended instructional hours) in Guatemala, 200 days (1050 intended instructional hours) in Honduras, and 192 days (1152 intended instructional hours) in Nepal. All four countries offered more hours of intended instruction, on average, than was found in their regions for Grades 1–3: 789 hours for Latin America and the Caribbean, 665 for South and West Asia, and 809 for sub-Saharan Africa (Benavot, 2004).

How does opportunity to learn vary across countries and schools?

Variation in opportunity to learn across schools in all four countries was fairly extensive. The smallest amount of variation was found in three OTL factors: days schools are open, teacher attendance, and student attendance. School-level variations for these factors ranged from 70 to 100 percent, with Ethiopia having the greatest variation in days open and Guatemala having the greatest variation in teacher and student attendance.

The variation in the percentage of time-on-task in all four countries was broad, but the range was widest in Ethiopia and Nepal. One school in Ethiopia averaged almost 70 percent student time-on-task during a lesson, while others were below 20 percent. In two schools in Nepal, students were on task 80 percent of the time, but one school averaged just 33 percent. The percentage of time spent on task in Honduras ranged from 34 to 75 percent. In Guatemala, the range was much smaller, with the lowest time-on-task at 47 percent and the highest at 71 percent. The countries varied in how on-task time was used in the classroom (e.g., for copying from the board, seatwork, discussion/debate). When teachers were on task, however, students were more likely to be on task.

Language textbooks were readily available in most of the study's schools for students in Grades 1–3. On average in each country, 8–10 schools provided over 75 percent of their students with a language textbook, and 5–6 schools provided textbooks for all students. In Guatemala, the percentage of students with textbooks in each school varied the most (between 0 and 100 percent). While more than 90 percent of students across the study had access to language textbooks, researchers rarely observed the books being used in



class. Students were rarely observed reading aloud, reading silently, or interpreting text (less than 12 percent of the time in Ethiopia, Guatemala, and Nepal and 21 percent of the time in Honduras). In addition, none of the countries had an official curriculum for teaching reading.

This lack of reading in classrooms was reflected in students' reading fluency scores. In Nepal, the majority of students either could not read at all (44 percent) or were able to read 41–60 wpm (26 percent). In Ethiopia, very few students read more than 40 wpm and the largest percentage (36 percent) could not read at all. Not a single Ethiopian student was able to read more than 70 wpm. Students' reading scores in Guatemala were more evenly distributed: only 4 percent were unable to read, 8 percent read 1–20 wpm, and 46 percent read more than 50 wpm. Students in Honduras were the strongest readers averaging 73 wpm. Over 60 percent of Honduran students sampled were able to read at least 70 wpm and 35 percent could read above 90 wpm.

Conclusions

The findings in Ethiopia, Guatemala, Honduras, and Nepal suggest that: a) a great deal of instructional time was lost; b) little, if any, reading instruction took place in most classrooms (Honduras excepted); and (c) while textbooks existed, their effective use was suspect. Additionally, while students had fairly good knowledge of CAP, their reading fluency scores were generally below the acceptable threshold of 60 wpm, except in Honduras.

The OTL profile further revealed that variation among schools in each country was considerable and that none of the 12 OTL factors correlated significantly with learning. While sample sizes were small and likely impacted regression results, the researchers believe the lack of a relationship was due to the small amount of classroom reading instruction.

The researchers did find some relationships. Ethiopian students working outside the home for money and repetition were correlated with higher reading scores. In Guatemala, the language children reported speaking at home was associated to differences in reading scores. Honduran students were observed reading more often, which was reflected in their higher reading scores. In Nepal, teacher attendance and the availability of textbooks were highly correlated with reading.

The OTL profile and subsequent analysis from these cases provides insights into the relationship between schools, instruction, and learning. Unless there is a minimum amount of instruction, specifically in reading, then educators should not expect a relationship between opportunity to learn and learning. This finding has important policy implications for those implementing programs or making education sector policy.

Policy Implications

Time Loss: Schools in all four countries used less than half of their potential opportunity to learn. Within classrooms, less than 12 percent of the time was spent reading. This finding suggests a need to develop curricula that focuses on teaching reading skills

and ensures that teachers are trained to teach reading. There is also a need to empower communities to monitor and supervise schools. Research has shown that community-managed programs that engaged parents ensured that schools were open and teachers and students were present.

Textbook Availability and Use: While most students had textbooks, their use in class was limited. This lack of textbook use indicates that teachers need training to use textbooks effectively in class. The training should include pedagogically sound approaches such as activity centers that emphasize word-use and structure, silent reading of story books, and peer reading.

Language arts books should also include stories and texts that allow students to practice reading. These books should engage children's imaginations and excite them about learning to read. International development organizations and developing country governments also need to recognize the lack of children's storybooks as a missing ingredient in promoting literacy. Learning to read will always be an uphill battle in places where the environment is devoid of interesting reading material.

Linking Teacher Training to Literacy Acquisition Strategies. Teacher training workshops are often held off-site and might not introduce teachers to useful pedagogical and managerial concepts. As a result, a behavior change approach to teacher improvement is needed that can identify classroom-based practices needed to engage students. Evaluation of behavior change over time needs to be conducted and tracked. Educators and communities also need to encourage an environment that is supportive of behavior change.

Teacher training and support should work in parallel with the provision of easels, storybooks, and other reading materials. Training should also prepare teachers to structure classrooms and class time in ways that are conducive to reading. In this lies a more complex set of investments with unclear financial trade-offs that should be carefully examined in each context.

Other policy implications from this study include investing in remedial support for students unable to read, ensuring that teachers use assessment to inform instruction, and using school support services to help teachers implement organizational and instructional changes.

While there are trade-offs and political challenges to each implication, educators must find concrete ways to ensure that students learn to read. The OTL profile can serve as a useful tool for educators to gauge how students are progressing. As an evaluative tool, the profile allows ministries of education to see school variations at the regional, district, or national levels and develop appropriate interventions. Unless there is a greater focus on instructional rather than administrative support, official visits to schools will continue to have limited impact on the opportunity to learn and learning outcomes found in schools.



Introduction

School effectiveness is a concept that is difficult to define and even more difficult to measure. To most educational planners, “effectiveness” is the measure of factors that enhance a child’s learning, irrespective of their background. While many models of school effectiveness exist, the Five-Factor model suggests that leadership, acquisition of basic skills, a secure environment, high student expectations, and frequent performance assessment are critical elements of effectiveness (Scheerens, 2000).

This study argues that improvement in school effectiveness requires educators to concentrate on even more basic elements than those posited by the research. Schools need to ensure opportunities to learn (OTL) for students, measured, in this study, by time spent on learning activities. Opportunity to learn begins with ensuring that school is open and that teachers and students are present. The educational value of that basic opportunity then depends on how teachers and students use the remaining available time, whether materials are present and used, and whether class sizes are reasonable.

Instructional time is a multi-faceted concept. While the importance of sufficient instructional time and its impact on student achievement is well documented, the length and focus of time for improving student learning remains unclear (Berliner, 1990; Benavot and Amadio, 2004; Abadzi, 2009). How much instructional time is lost in schools? Should educators extend the school day or year? Or, should the focus be on improving the use of existing instructional time? If existing time is increased, will it impact student achievement?

This study documented the loss of effective instructional time and argues that educational interventions should focus on improving the use of existing instructional time. The study further establishes a 12-factor OTL profile to analyze the variations in school effectiveness and instructional time within samples of schools in Ethiopia, Guatemala, Honduras, and Nepal. The study answers the following questions:

- How well do schools provide opportunity to learn?
- How does actual opportunity to learn compare to potential opportunity to learn?
- How does opportunity to learn vary across countries and schools?

A literature review found no studies that had examined extended allocated instructional time in developing countries. However, studies by Stallings (1980), Berliner (1990), and Abadzi (2007) showed that the instructional time variables, including allocated time, transition time, opportunity to learn, waiting time, and academic engagement were alterable, easy to measure, and understood by teachers. Changes in these time variables are easy to make and quickly affect classroom performance, as noted by Berliner (1985). While policy analysts find greater interest in allocated time because it is easy to manipulate, it is a weak predictor of improvement in learning.

Data collected from schools in Ethiopia, Guatemala, Honduras, and Nepal indicated low levels of opportunity to learn and instructional time and differed greatly from these schools’ potential opportunity to learn. Data also varied considerably between schools

across most opportunity to learn factors. In particular, the teaching of reading was inadequate in most schools included in this study. These findings highlight a series of issues related to school effectiveness and the optimization of opportunity to learn such as ensuring that the school is open every day, that teachers and students are present, and that students spend an increasing amount of time on task.

Definition of an OTL Profile

The concept of opportunity to learn began in the 1960s when John Carroll acknowledged that students lagging behind could master the intended content given more instructional time. The concept focuses on the time allocated to teaching, learning, and curriculum coverage and is supported throughout the literature (Bloom, 1968; Gettinger, 1984; Abadzi, 2007; Gillies and Quijada, 2008). The OTL profile begins with the premise that student learning is a function of time, effort, and effective instructional activities as outlined by Gillies and Quijada of the Educational Quality Improvement Program 2 (EQUIP2). In addition to OTL factors that impact the amount and use of classroom time, this study looked at the availability and use of materials, student ability to read fluently in the language of instruction, and the provision of support services to schools.

To construct a measurable OTL profile, this study drew on Gillies and Quijada's work, using several factors verbatim and adding and modifying others to arrive at the set of 12 OTL factors described in Table 1. A detailed discussion of each factor forms the core of this study.

Methodology

Data for the study were collected through first-hand field research in Ethiopia, Guatemala, Honduras, and Nepal, made possible through collaboration with CARE, Save the Children USA, and each organization's in-country offices. EQUIP2 provided the research design and most of the data collection methodology. CARE and Save the Children provided input to the data collection approach and recruited interns to manage field data collection. Both organizations' country offices provided access to schools with which they worked and organized all field logistics: CARE in Honduras and Save the Children in Ethiopia, Guatemala, and Nepal.

Samples of schools in each country were drawn from those participating in CARE and Save the Children education programs, based on stratification by school size and location. Control schools—those not participating in the NGO-supported programs—were also sampled. Field teams then visited each school and conducted interviews with the school director and teachers in Grades 1–3. One-hour observations using the Stallings methodology were conducted in Grade 1, 2, and 3 classrooms. A random sample of Grade 3 students were interviewed, were given a 10-item assessment based on Concepts about Print (CAP, a pre-literacy evaluation of familiarity with printed materials developed by Marie Clay), and completed a battery of Early Grade Reading Assessment (EGRA) tools including letter recognition, word recognition, and reading text.



Table 1. Opportunity to Learn Factors

Factor	Measure	Comment
1. Percentage of days school is open	The percentage of days school is open as scheduled on the academic calendar	Accounts for time lost when schools open later or close earlier than scheduled in the school year and when schools are closed when they should be open
2. Teacher attendance ^a	The percentage of days school is open in which teachers are present	Uses the average attendance rate for the entire staff of a school
3. Student attendance ^a	The percentage of days school is open in which students are present	Uses the average attendance rate for all Grade 3 students of a school
4. Percentage of the school day available for instruction	The percentage of the available classroom time when teachers and students are together	Accounts for time lost due to late start or early end of the school day, recess, and other breaks
5. Percentage of student time-on-task ^b	The percentage of classroom time when students participate in instruction-related activities	Uses observed percentage of time and number of students engaged in instruction-related activities
6. Equivalent percentage of days available for instruction	The percentage of equivalent days available for instruction after accounting for time lost due to school closing, teacher and student absence, daily time loss, and time-off-task	Summarizes OTL Factors 1–5
7. Percentage of students with a textbook	The percentage of Grade 1–3 students possessing a reading or language textbook	
8. Percentage of observed textbook use	The percentage of observed time during which students use any textbook	Uses one-hour observations in Grade 1, 2, and 3 classrooms (total of three hours)
9. Percentage of time spent reading	The percentage of observations during which at least one student was reading	Uses one-hour observations in Grade 1, 2, and 3 classrooms (total of three hours)
10. Grade 3 reading ability	The number of words of grade appropriate text read correctly per minute	Uses EGRA in the language of instruction
11. Class size	The average number of students enrolled in Grade 3	Uses the average registered number of children per Grade 3 class in each school, not those in attendance during observations
12. School support	The number of visits by support personnel during the school year	Uses reports from principals and teachers and includes all visits by education officials, NGO staff, or other support staff

a) For teacher and student attendance, data were collected for seven months of the school year in Guatemala and Honduras. In Ethiopia, rates were estimated based on one month of attendance data. Attendance data for Nepal was not available.

b) On-task activities were defined by the Stallings observation instrument and include: reading out loud, discussion/debate, demonstration/lecture, seatwork, copying, verbal instruction, practice/drill, reading text, and interpreting text.

Context

The four field studies included in this research were conducted in collaboration with CARE in Honduras and with Save the Children in Ethiopia, Guatemala, and Nepal. The CARE and Save the Children programs defined the context in which the schools in the study operated. The programs in each country had been operating for a number of years and each provided a variety of supports to the targeted communities and schools. In Ethiopia, Guatemala, and Nepal, Save the Children focuses on giving every child the opportunity to attend school. In Honduras, CARE works to secure educational opportunities and quality schooling to children in rural areas.

The study drew samples of 24 schools in Ethiopia, 26 in Guatemala, 33 in Honduras, and 23 in Nepal. The Ethiopia sample included 15 community schools and 9 government schools, of which 6 received no support from Save the Children. In Guatemala, the sample included 20 Save the Children-supported schools and 6 control schools. The Honduras sample included 27 CARE-supported schools (3 in peri-urban areas and 24 in rural districts) and 6 control schools. In Nepal, of the 23 schools in the sample, 7 were control schools.

Table 2 summarizes information about the students included in the study. Students were evenly split by gender in Ethiopia, Guatemala, and Honduras. In Nepal, there were more boys than girls. The average age of students in the study was 10 years. In Ethiopia, however, more than 71 percent of the sample was older than 10 years, compared to 40 percent, 9 percent, and 30 percent in Guatemala, Honduras, and Nepal, respectively. Students in Guatemala, Honduras, and Nepal had higher participation rates in kindergarten (73 percent, 86 percent, and 66 percent, respectively) compared to Ethiopia where only 28 percent of sampled students had attended kindergarten.

Spanish was the only language spoken in the areas visited in Honduras. Of the multi-lingual countries, Ethiopia had the most linguistically homogenous set of students, with 91 percent speaking Afan Oromo. Guatemala had the most diverse group with 34 percent speaking K'iche as their mother tongue (and also speaking Spanish at home), 30 percent speaking Mam, and 25 percent speaking Ixil. Another 11 percent of students in Guatemala spoke only Spanish. In Nepal, the students spoke mainly Nepali and Tharu.

Family size and other socio-economic characteristics were similar within each country's samples. Within each country, schools were located in areas with similar levels of economic development.



Table 2. Characteristics of Students in Sample Schools

	Ethiopia		Guatemala		Honduras		Nepal	
# of Grade 3 students tested	456		505		388		480	
Boys	51%		50%		50%		54%	
Girls	49%		50%		50%		48%	
Mother tongue:	Afan Oromo	91%	K'iche	34%	Spanish	100%	Nepali	47%
	Gurage	6%	Mam	30%			Tharu	41%
	Amharic	3%	Ixil	25%			Rana Tharu	8%
			Spanish	11%			Other	3%
Average age	10.5		10		9		10	
% older than 10 yrs	71%		40%		9%		30%	
% who attended K	28%		73%		86%		66%	
% not repeating	77%		88%		89%		94%	
% live < 10 min to school	37%		51%		30%		48%	
% live 10-30 min. to school	45%		40%		44%		38%	
% live >30 min. to school	17%		10%		26%		15%	
Average family size	7		7		7		7	
% of students work for \$	26%		29%		14%		0%	
% who have at home:								
Radio	82%		94%		97%		66%	
Toilet	77%		82%		55%		22%	
Electricity	13%		79%		30%		68%	
Television	3%		63%		31%		25%	
Refrigerator	2%		22%		15%		0%	
> 3 of the above	11%				35%			

Findings

How well do schools provide an opportunity to learn?

Table 3 and summarizes the average OTL factor values for sample schools in each country. Schools in each country were open over 90 percent of the days on the school calendar and teacher and student attendance rates were fairly high. Only a small portion of opportunity to learn was lost due to Factors 1–3. However, other factors lowered the provision of opportunity to learn.

In Guatemala, sample schools used only 72 percent of the available day for instruction due to late starts, early closings, teacher and student absences, and prolonged breaks in the day for recess (i.e., 30 minute recess periods ran as long as 60 minutes). In all four countries, additional opportunity to learn was lost when student time-off-task in classrooms was taken into account. In Guatemala and Nepal, students were on task only 59 and 60 percent of the time, respectively. In Honduras, students were on task 56 percent of the time while in Ethiopia, they were on task only 41 percent of the time.

Table 3. Summary of Performance on OTL Factors

Factor	1 Open	2 Tcher attd rate	3 Stdnt attd rate	4 % of day used	5 % ToT	6 % days inst	7 % w/ text	8 % obs using text	9 % obs read	10 Oral read (wpm)	11 Class size	12 # visits/ yr
Ethiopia	93%	89%	97%	--	41%	33%	83%	4%	3%	18	44	18
Guatemala	97%	88%	92%	72%	59%	33%	63%	3%	11%	46	27	7
Honduras	93%	94%	97%	82%	56%	40%	58% ^a	22%	21%	73	29	5
Nepal	90%	91%	--	92%	60%	45%	84%	14%	12%	26	44	3

a) Grade 3 only

In all four countries, when time loss due to school closings, teacher and student absences, and off-task students were combined, schools used less than 50 percent of the equivalent available days for instruction (OTL Factor 6). Expressed as the number of days in the school year in which children and teachers were in school at the same time, this equivalent time came to approximately 69 days in Ethiopia, 56 days in Guatemala, 78 days in Honduras, and 87 days in Nepal. In Nepal, the value would have been lower if student attendance were taken into account; in Ethiopia the value would have been lower if time-use during the day were taken into account.

On average, more schools in Ethiopia and Nepal than in Guatemala and Honduras had language textbooks for Grades 1–3 (provision of materials is an explicit aspect of Save the Children’s programs). However, students were observed using those textbooks a very small percentage of the time (OTL Factor 8). Students were also observed reading in class similarly low percentages of time: less than 12 percent of the time in three of the countries. Oral reading fluency in Ethiopia, Guatemala, and Nepal was low for Grade 3, while students were clearly more proficient readers in Honduras. The averages in Ethiopia and Nepal (18 and 26 wpm, respectively) were made lower by the significant percentages of Grade 3 students who could not read at all. Average class sizes were reasonable in all four countries and schools reported receiving support visits quite frequently in Ethiopia, frequently in Guatemala and Honduras, and a few times per year in Nepal.

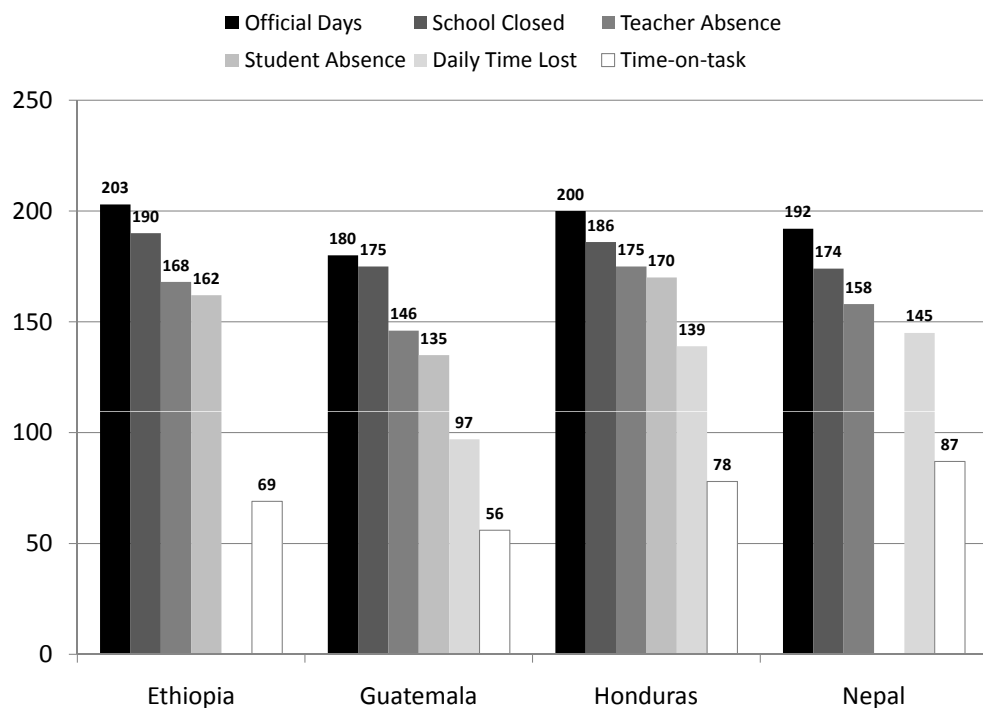
How does actual opportunity to learn compare to potential opportunity to learn?

To compare actual opportunity to learn with potential opportunity to learn, the study looked at the combined effect of OTL Factors 1–5 to determine the equivalent number of days of instruction as compared to the total number of days in the school year. The official school year was 203 days in Ethiopia (812 intended instructional hours), 180 days in Guatemala (900 intended instructional hours), 200 days in Honduras (1050 intended instructional hours), and 192 days in Nepal (1152 intended instructional hours). All four countries offer more hours of intended instruction, on average, than is found in their regions for Grades 1–3: 789 hours for LAC, 665 for South and West Asia, and 809 for sub-Saharan Africa (Benavot, 2004).



From the official number of school days on the calendar, the number of days school was closed was subtracted. In all countries, no school was open every day it should have been. Days were lost when schools opened after the official start date or when school was closed because of weather, local holidays, or school director absences, for example. Additional days were subtracted from the potential total to account for teacher and student absences. In all four countries, the loss of time during the school day in the periods for which data were available was converted into an annual estimate of equivalent days lost. Lastly, student time-off-task during observed lessons was also converted into an annual estimate of equivalent days lost. Figure 1 summarizes time lost during the school year and how this erodes the time available for opportunity to learn.

Figure 1. Equivalent Days of Schooling Available for Teaching and Learning



In Ethiopia, only the equivalent of 69 out of 203 days were used for instruction (which would have been lower if data on time lost during the day were available). In Guatemala, instruction occurred only on the equivalent of 56 out of 180 days. In Honduras, an equivalent of only 78 out of the possible 200 days of instruction were used. In Nepal, the equivalent of 87 out of 192 days were used for instruction (which would have been lower if student attendance data were available).

In addition to comparing the time-related OTL factors to the total potential time for instruction, data on the percentage of observations during which children were reading (OTL Factor 9) shed light on the actual versus potential opportunity to learn, or in this case, the opportunity to practice reading. In all four cases, the percentage of observations

in which students read material (including from the blackboard) was very low: 21 percent in Honduras, 12 percent in Nepal, 11 percent in Guatemala, and only 3 percent in Ethiopia.

Obviously, students could not have been reading all the time, but the opportunity to practice reading should be larger than such a small fraction of each school day. For example, 3 percent of a five-hour school day equates to 9 minutes of reading per day. Abadzi (2008) notes that achieving automatized reading processes requires extensive practice with books and phonics, particularly in languages such as English, French, Portuguese, and Spanish. Such low amounts of daily practice cannot be expected to lead to automatization. It is important to note that reading scores were higher in Honduras, which could have been linked to the larger amounts of reading observed in the classroom.

How does opportunity to learn vary across schools?

The previous section shared the average values of various OTL factor across all sample schools, disaggregated by country. However, more significant than average values was the variation in opportunity to learn across schools within each country. Both the nature and quality of the opportunity to learn provided at each school varied considerably, with schools performing better than the average on some factors while doing worse on others. While the non-control schools in each country were the objects of school improvement efforts (e.g., installation of infrastructure, provision of materials, training of teachers, ongoing financial and technical support), the impact of these efforts was not uniformly evident across schools.

The following section provides factor-by-factor discussion of this variation and reports whether any significant correlations were found among OTL factors, in particular whether OTL Factor 10 (student reading ability) correlated with any of the other factors (alone or in combination).

OTL Factor 1: The percentage of days school is open

In Ethiopia, no school in the sample was open every day. Many schools initiated the school year after the official start date and most were closed additional days. At least 2 of the 26 schools were open less than 90 percent of the days available for instruction. One school had been closed for nearly all of the first three months of the school year.

Guatemala varied the least in the percentage of days schools were open. Some schools were open every day, and one school was open on 90 percent of the scheduled school days. When closures did occur, most were due to teacher training days or unplanned holidays. School closures in Guatemala (five days, on average) tended to follow a similar pattern to other countries in the region where days lost to school closings for Grade 4 students ranged from a high of 6.3 in Paraguay to a low of 1.3 in Uruguay (Zhang, et al., 2008).

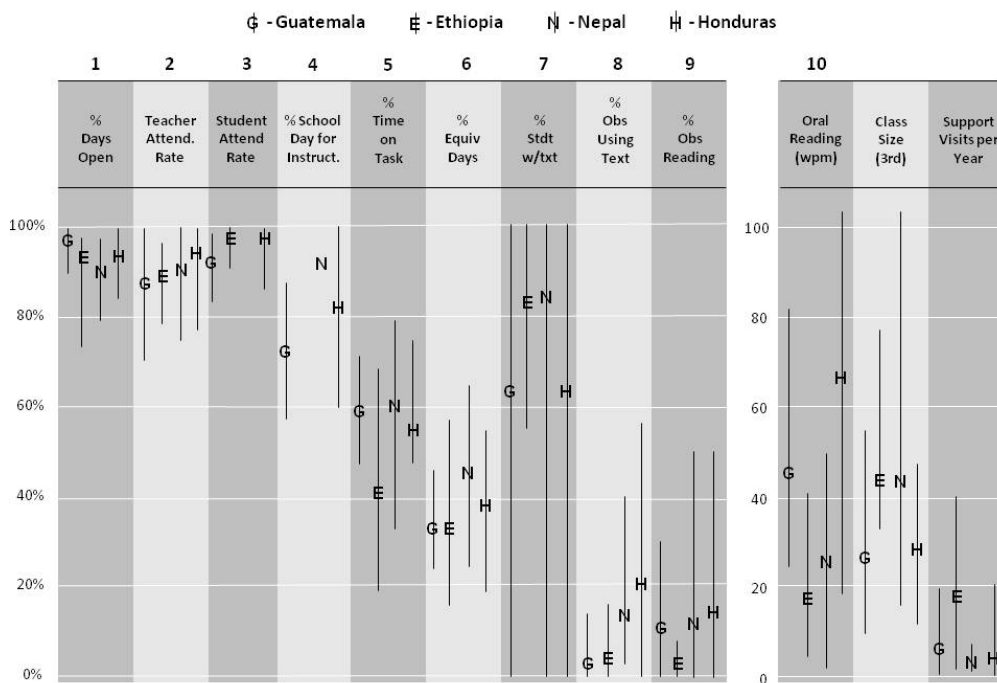
In Honduras, 50 percent of interviewed principals reported beginning the school year late, on average five days after the official start date. Not one school in the sample was



open every day of the academic calendar. Schools most often reported closures for teachers’ pay days, strikes, and teacher training. Every rural school reported closing its doors once per month so teachers could cash their paycheck. On the days of this study’s observations, 40 percent of the schools reported having lost over two weeks of school due to unofficial closings.

The same challenges were present in Nepal as in Ethiopia, where not one of the sample schools was open every day. There was a great deal of variation in school closings, ranging from a low of 4 days closed to a high of 39 days. At least 8 of the 23 schools were open less than 90 percent of the days available for instruction.

Figure 2. Opportunity to Learn Factors: Variation Across Sample Schools



OTL Factor 2: Teacher attendance

In Ethiopia, the teacher attendance rate was obtained from the official teacher attendance record of each school. Teachers attended school an average of 89 percent of the time. Three schools had teacher attendance rates of 70 to 80 percent, nine had teacher attendance rates of 80 to 90 percent, and nine had attendance rates above 90 percent.

In Guatemala, teacher attendance data were difficult to obtain as many schools lacked attendance books. Absentee data were not documented in a consistent fashion and often not collected until later in the year, if at all. Generally, an average absenteeism rate was triangulated from the principal log books and the teacher’s student absenteeism logs across the number of months that the schools had been open. On average, across the 26

schools in Guatemala, teachers were absent two days per month, an attendance rate of roughly 88 percent. Some schools had perfect teacher attendance (based on the available records), while others had attendance rates as low as 68 percent.

In Honduras, teacher attendance data were collected in a manner similar to that in Guatemala. In schools with only one or two teachers, the student attendance log was the only official school attendance record kept. On average, across the 33 schools, teachers were absent 12 days per year. Only 2 schools had teacher attendance rates below 90 percent while 15 had attendance rates of 95 percent and higher.

In Nepal, the researchers were unable to obtain official records for teacher attendance. However, principals were asked to report on teacher attendance during the week prior to the interview. These attendance rates were used to estimate teacher attendance over the entire school year. On average, teachers were present 91 percent of the time. Two schools had teacher attendance rates just below 80 percent, and five others had rates between 80 and 90 percent. The remaining 16 schools reported attendance rates over 90 percent.

These attendance rates were consistent with studies conducted by Chaudhury (2005) and Abadzi (2009) that showed teacher absence rates between 11 and 27 percent in Bangladesh, Ecuador, India, Indonesia, Peru, Uganda, and Zambia.

OTL Factor 3: Student attendance

If a student is not present and ready to learn, he or she cannot take advantage of the other opportunities to learn assembled at the school. However, similar to teacher absenteeism, few studies have quantified student absenteeism due to scarce school and teacher attendance records. Similar to this study, available international research, such as the work of Zhang, et al. (2008), has focused on principal and teacher perceptions of student absenteeism, rather than actual attendance records. However, 2003 PISA data indicated student absenteeism rates ranging from 27 to 90 percent in Brazil, Hong Kong-China, Indonesia, Russia, Serbia, Thailand, and Tunisia. This study acquired and analyzed data on student attendance for Ethiopia, Guatemala, and Honduras, but not Nepal.

In Ethiopia, data obtained from schools' attendance books in the first few months of the school year indicated that students in most schools were present more than 90 percent of the time. Only one school had an official attendance rate lower than 90 percent. A specific objective of Save the Children's program was to bring schools closer to the communities in which children live. Therefore, it was not surprising that the schools in the sample drew students from their immediately surrounding villages. More than 80 percent of students in the sample lived within a 30 minute walk to school with 37 percent walking less than 10 minutes. This contributed to the high attendance rates. However, spot checks during classroom observations often revealed a higher rate of absenteeism than officially recorded.

In Guatemala, there was considerable amount of variation in student attendance rates. The data collected by this study indicated that students were present 92 percent of the



time. The lowest attendance rate was 83 percent, which corresponded to a loss of 31 days in that school. Since most students traveled between 15 and 18 minutes to school, the relatively high student attendance rate could have been due to the close proximity of schools to students' homes, although students consistently arrived late.

Student attendance rates in Honduras were high across the schools in the sample. On average, students were present 97 percent of the time. Only 2 schools had attendance rates lower than 90 percent and 14 schools had attendance rates of over 99 percent. The adjusted school schedules in rural areas may have accounted for these high attendance rates. While city schools began class at 7:30 a.m., classes in the municipality of Gujiquiro began at 8:00 a.m. to give students enough time to arrive at school. Given that, on average, students in the rural areas reported walking 25 minutes to school, the delayed start may have contributed to higher attendance rates.

OTL Factor 4: Percentage of the school day available for instruction

The percentage of the school day available for instruction takes into account the non-instructional components of the school day, such as recess. It also recognizes that school may start late, end early, or experience interruptions in instructional time for a variety of reasons (e.g., the teacher or students may be out of class). This study collected data on the loss of instructional time during the school day in Guatemala, Honduras, and Nepal.

In Guatemala, teachers and students were regularly observed arriving late to school. Additionally, recess often ran longer than scheduled. The percentage of the day available for instruction in Guatemala, Honduras, and Nepal was found by subtracting this time lost and treating the remaining time (when teachers and students were in class together) as a percentage of the full, five-hour school day. On average, schools in the study used only 72 percent of the school day, with wide variation across schools. One school used only 57 percent of the day, and eight used only 67 percent of the day.

In Honduras, schools most often started on time but experienced multiple breaks during the day. While most schools took both a recess and a lunch break, the length of these breaks varied considerably. Some schools took up to two hours for these breaks, while others took only 30 minutes. A number of schools did not give a lunch break due to the government's failure to provide student lunches. School days also ended at various times due to parent meetings, bus schedules, or a lack of material to continue class. On average, schools in the study used only 80 percent of the available learning time, with a wide amount of variation. One school used 100 percent of the day, compensating for recess with an extra 30 minutes of class, while seven used only 70 percent of the available learning time.

Data on this OTL factor for Nepal only accounted for a 30 minute recess each day, leaving 92 percent of the day available for instruction. In Ethiopia, no data were collected on school start and end times, recess, or other interruptions. However, school observations revealed that teachers and students were not always in class at the scheduled

time, suggesting that the use of available time for instruction was less than 100 percent in Ethiopia as well.

Little research has captured the time devoted to learning once school closures, absenteeism, and daily time loss are taken into account. However, research by Abadzi (2007a) showed that once these variables were accounted for, only 63 percent, 39 percent, 71 percent, and 78 percent of the official days of instruction remained for learning in Brazil (Pernambuco), Ghana, Morocco, and, Tunisia, respectively.

OTL Factor 5: Percentage of student time-on-task

For the purposes of this study, time-on-task refers to the time that students were paying attention to materials with instructional goals; the time spent on specific academic activities such as reading, mathematics, or social studies; and learning time. The Stallings Observation Instrument, used to collect the time-on-task data, measured both on-task and off-task activities. Teachers and students were considered on task when engaged in academic activities such as reading aloud, discussion/debate, demonstration/lecture, verbal instruction, seatwork, copying, practice/drill, reading silently, or interpreting text. Off-task activities included discipline, classroom management, social interaction, student disengagement, and teachers or students being out of the classroom during an activity.

The overall equivalent time lost due to OTL Factors 1–4 was small compared to the loss of time when students were off task. The variation in the percentage of time-on-task in all four countries was broad, but the range was widest in Ethiopia and Nepal. One school in Ethiopia averaged almost 70 percent of student time-on-task during a lesson, while others were below 20 percent. In Nepal, two schools were at almost 80 percent of student time-on-task, but one was at 33 percent. Time spent on task in Honduran classrooms ranged from 34 percent to 75 percent. In Guatemala the range was much smaller, with the lowest student time-on-task at 47 percent and the highest at 71 percent.

As Table 4 demonstrates, on average, students were more likely to be engaged in non-instructional (off-task) activities than on-task activities. In all four countries, students were off task between 40 and 58 percent of the time. Ethiopia had the largest percentage of students observed in off-task activities at 58 percent. Most often, these students were socializing with others or simply not participating in the learning activity.

Concerning the on-task students, the learning activities in which students were engaged varied between the four countries. In Ethiopia, on average, more students were engaged in demonstration and practice/drill activities while Guatemalan and Honduran students were observed most often doing seatwork. In Nepal, more students, on average, were observed copying or doing seatwork than any other activity.



Table 4. Use of Time in Class

Category of Activity	Ethiopia	Guatemala	Honduras	Nepal
Non-instructional ^a	58%	42%	44%	40%
Demonstration	11%	6%	5%	12%
Practice/Drill	10%	5%	4%	11%
Copying	7%	6%	5%	13%
Seatwork	5%	21%	25%	13%
Reading	4%	4%	6%	5%
Discussion	3%	7%	5%	2%
Verbal Instruction	2%	6%	5%	3%

a) Includes students who were interacting socially, being disciplined, involved in classroom management, or otherwise unengaged.

In addition to calculating the overall percentage of on-task students during an observation, the researchers also looked at patterns in students’ behavior when the teacher was on or off task. Table 5 shows that, in each country, teacher involvement in a learning activity led to greater percentages of on-task students. On average in Nepal, 77 percent of students were on task when the teacher was on task, while in Guatemala, Honduras, and Ethiopia the averages were 69 percent, 62 percent, and 61 percent, respectively. However, when teachers were off task, students were much less likely to be engaged in learning activities. In both Ethiopia and Nepal, only 12 percent of students were observed to be on task when teachers were off task. These numbers demonstrate the importance of teachers leading or being involved with a lesson to increase the likelihood that their students will also be on task.

Table 5. Use of Time in Class: Teacher and Student Time-on-task Data

		Percentage of students on task			
		Guatemala	Honduras	Ethiopia	Nepal
Overall Average		58%	56%	42%	60%
When Teacher Is on Task		69%	62%	61%	77%
When Teacher Is Off Task		32%	36%	12%	12%
Teacher On-Task	Grade 1	70%		63%	79%
	Grade 2	73%	N/A	55%	78%
	Grade 3	66%		62%	74%
Teacher Off-Task	Grade 1	38%		14%	11%
	Grade 2	29%	N/A	11%	14%
	Grade 3	30%		11%	10%

Researchers in Guatemala also used the Guatemalan Ministry of Education teacher practice standards to determine effective classroom practice. While seatwork and copying were still the predominate on-task activities, other activities were used fairly frequently to aid learning: cooperative, small group activities; debate and discussion, particularly in social studies and geography; and learning tools such as games and manipulables. In fact, teachers' pedagogical skill levels rated reasonably well against the Ministry of Education's standards for time management, classroom management, and use of instructional resources.

As with Factor 4, little research has captured the use of time in classrooms. While Brazil, Ghana, Morocco, and Tunisia differ in income and poverty levels from the countries in this study, they showed similar results. In Pernambuco, Brazil, students were engaged in interactive learning 53 percent of the time, while students in Ghana were engaged approximately 52 percent of the time. Rates were slightly better in Morocco and Tunisia at 63 and 62 percent, respectively (Zhang, et al., 2008).

OTL Factor 6: Equivalent percentage of days available for instruction

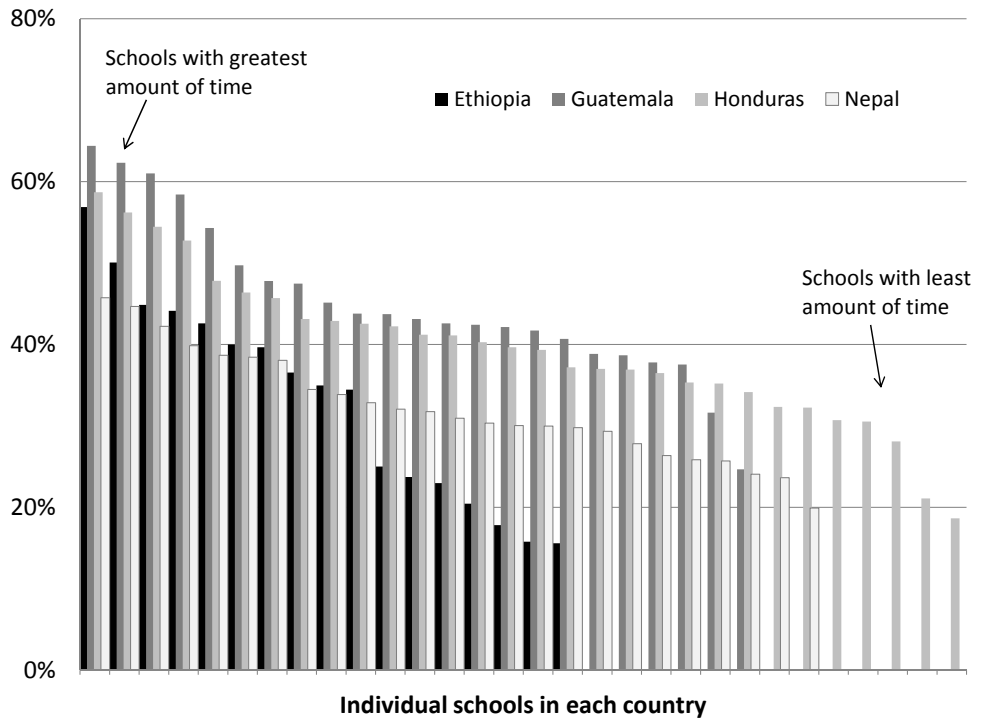
This factor measures the combined effects of OTL Factors 1–5, all of which relate to the amount of time available for teachers and students to engage in learning activities. To calculate the equivalent percentage of days available, researchers started with the percentage of days school was open (the official number of school days minus the number of days a school was closed when it should have been open). Teacher and student absence were factored in, as learning could only occur when both were present. Time lost for breaks in the school day was then factored out. Finally researchers accounted for time-on-task to differentiate between classroom time used for learning activities as opposed to non-instructional activities.

This study revealed that, on average, only the equivalent of 69 out of 203 days were used for instruction in Ethiopia, 56 out of 180 days in Guatemala, 78 out of 200 days in Honduras, and 87 out of 190 days in Nepal (numbers for Ethiopia and Nepal would have been lower if data were available for time lost during the day and student attendance, respectively). This study also uncovered considerable variation across schools in how OTL Factors 1–5 interacted to determine an equivalent percentage of days each school made available for instruction. Figure 3 shows this variation.

In Guatemala and Nepal, some schools had twice the equivalent number of days available for instruction as compared to other schools. In Ethiopia, the schools that made the most time available for instruction had three times the equivalent available days than those with the least available time; in Honduras, some schools provided up to four times the number of equivalent instructional days than other schools.



Figure 3. Variation in the Equivalent Percentage of Available Days for Instruction



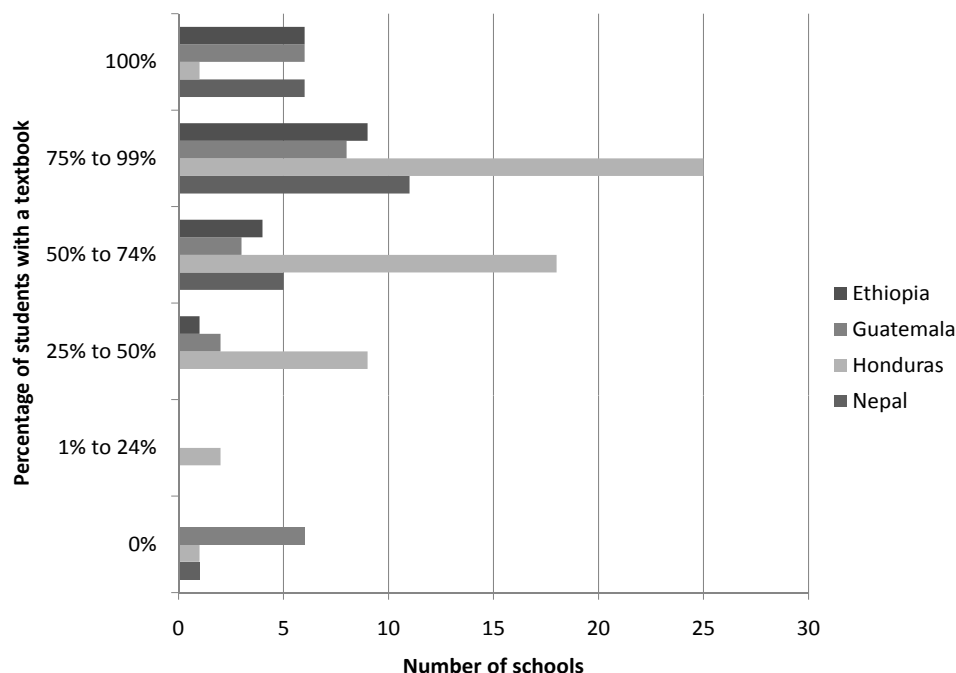
OTL Factor 7: Percentage of students with a textbook

Figure 4 shows that language textbooks were readily available for students in Grades 1–3 in most of this study’s schools. On average, up to 25 schools in each country provided over 75 percent of their students with a language textbook. In each country, fewer than six schools had textbooks for every student. In Guatemala, six schools in the sample had no language textbooks for students in Grades 1–3 and one school in both Nepal and Honduras similarly lacked this important resource. Although most Honduran classrooms in the sample had some textbooks, less than 50 percent of the students had exercise books, which were an integral part of the national curriculum.

In addition to language textbooks, students were asked if they had pencils and notebooks. In all four countries, the great majority of students had all basic materials. Moreover, students were often seen using these materials.

In Ethiopia, 18 observations revealed that students were engaged in practice and drill, which teachers taught mostly through the blackboard. During 19 observations, students completed seatwork with their notebooks and 21 observations showed demonstration taking place in the classroom. Teachers most frequently used the blackboard as the medium of instruction for demonstrations. Students were observed engaging in activities related to reading in only 11 percent of observations.

Figure 4. Provision of Language Arts Textbooks to Students



In Guatemala, students were most frequently observed doing seatwork in their notebooks (22–24 observations, depending on the country). Some discussion/debate and demonstration was also observed in Guatemala, but much less frequently (6–8 observations). When these activities were taking place, the medium of instruction was frequently the blackboard. Similar results were found for Honduras and Nepal.

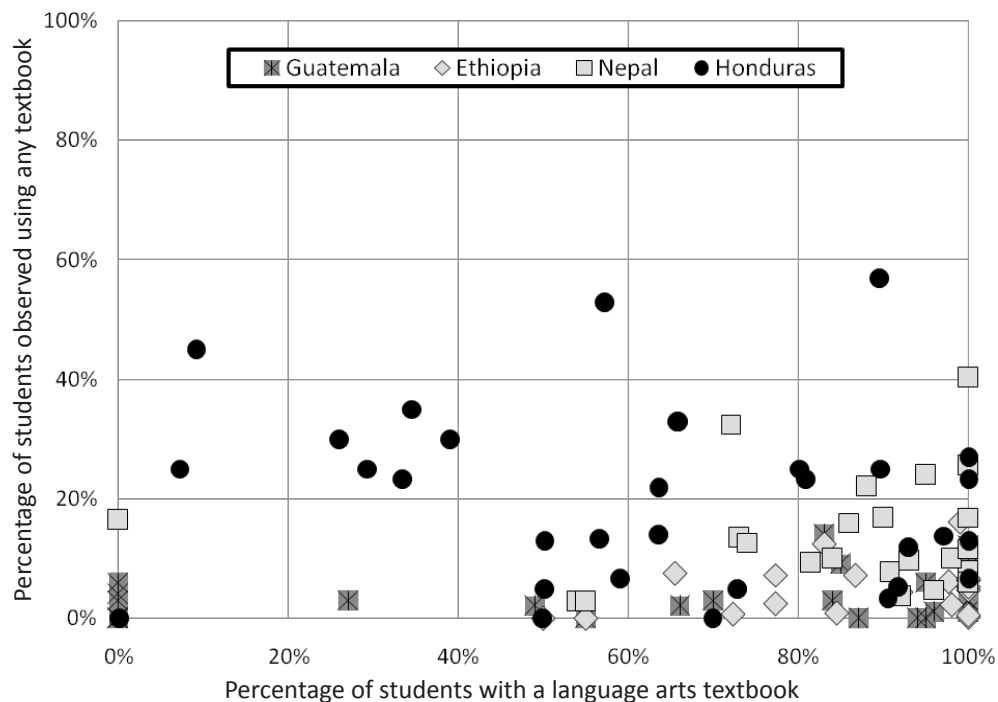
OTL Factor 8: Percentage of observed textbook use

A higher percentage of students were observed using textbooks in Honduras than in Ethiopia, Guatemala, and Nepal. Figure 5 combines OTL Factors 7 and 8 to show how textbook availability and use were interrelated in the schools studied. Each data point in the figure represents one school.

It is interesting to note that the majority of data points for Ethiopia, Guatemala, and Nepal cluster in the lower-right side of the graph. This indicates that high textbook availability in a school was associated with relatively low observed textbook use. Also of interest is that all outliers (schools with higher than average textbook use for a given level of textbook availability) are found in Nepal. The results for Honduras show a more scattered use of textbooks, with more students observed possessing and actually using textbooks in the classroom.



Figure 5. Percentage of Students Observed Using a Textbook for a Given Level of Textbook Availability



OTL Factor 9: Percentage of time spent reading

Classroom observations revealed that reading instruction was almost non-existent in all four countries. Students were rarely observed reading aloud, reading silently, or interpreting text: This occurred less than 12 percent of the time in three countries and 21 percent of the time in Honduras. Additionally, none of the countries had an official curriculum for teaching reading.

While more than 90 percent of students in the study had access to language arts textbooks, researchers rarely observed textbook use in class. In Ethiopia and Nepal, the books lacked reading passages and stories, making it difficult for researchers to develop the reading fluency test. In Guatemala, reading passages and stories were easy to locate, but were rarely in the mother tongue. In fact, the only schools possessing Mayan story books were those supported by Save the Children, and even then these books were often locked in the principal’s office. No structured approach to reading was observed in any classroom in this study. In Honduras, teachers reported waiting two to three years for textbooks. The district education office reported that books would be delivered for the 2008 school year, but at the time of the research visits (halfway through the school year), new books had yet to arrive at these schools.

OTL Factor 10: Grade 3 reading ability

Reading ability is both an outcome of opportunity to learn and a critical determinate of whether students continue to learn and advance in school. If students do not acquire an

adequate level of reading ability early in their schooling, they fall further behind. Thus, students’ continued opportunity to learn depends on their level of reading ability.

Given the lack of focus on reading and reading instruction, it was not surprising to find low Grade 3 reading performance. In Honduras, the site of the highest percentage of observed reading activities, students’ overall reading performance surpassed that of students in the other three countries. While the average number of words read per minute provided a general idea of student reading levels, this number masked the enormously wide range of abilities found in each country. As Table 6 demonstrates, students in every country read at many different rates.

Table 6. Frequency Distributions of Reading Fluency

Words per Minute	Ethiopia	Guatemala	Honduras	Nepal
Zero	36%	4%	8%	44%
1-10	15%	2%	1%	3%
11-20	9%	6%	2%	3%
21-30	13%	11%	2%	6%
31-40	12%	11%	2%	7%
41-50	9%	18%	6%	16%
51-60	3%	15%	8%	10%
61-70	2%	12%	11%	5%
>70	0%	19%	60%	7%

In Nepal, the majority of students either could not read at all (44 percent) or were able to read 41–60 wpm (26 percent). In Ethiopia, very few students read more than 40 wpm and the largest percentage (36 percent) could not read at all. Not a single student was able to read more than 70 wpm. In addition, only 2 schools in Ethiopia and 11 schools in Nepal averaged more than 25 wpm on the fluency test.

Students’ reading scores in Guatemala were more evenly distributed. Very few children could not read (4 percent), 8 percent read 1–20 wpm, and almost half the sample (46 percent) read more than 50 wpm. Students in the study averaged 47 wpm, but the range among schools was between 25 wpm and 82 wpm.

Students in Honduras were, on average, the strongest readers in the sample with an average reading score of 73 wpm. Similar to Guatemala, few children (8 percent) could not read and only 3 percent read at 1–20 wpm. The majority of students (over 60 percent) read at least 70 wpm, and 35 percent read over 90 wpm.

Neurocognitive research conducted by Abadzi (2008) suggests that all students should be able to decode by the end of Grade 1; that all Grade 2 students should be able to read at least 60 wpm; and that Grade 6 students should be able to easily read 120–150



wpm and provide a summary of the passage. In the Arabic script languages, all students should be able to read effectively within one to two years of beginning instruction.

Identifying the causes of these reading level patterns across countries is essential in order to improve students’ reading abilities. This study used Concepts about Print to assess whether students were acquiring skills foundational to learning to read. As Table 7 demonstrates, the majority of students in these cases had acquired pre-literacy foundation in either their mother tongue or the language of instruction. While Ethiopian and Nepalese students had low reading scores, they knew their letters and print concepts. Higher CAP scores were correlated with better reading performance, but almost all students answered most CAP questions.

Table 7. Concepts about Print

# of CAP Correct Answers	Ethiopia		Guatemala		Honduras		Nepal	
	% Students by CAP score	Avg wpm	% Students by CAP score	Avg wpm	% Students by CAP score	Avg wpm	% Students by CAP score	Avg wpm
Zero	1%	9	34%	40	0%	40	1%	5
1	0%		6%		1%		2%	
2	0%		3%		0%		3%	
3	5%		2%		1%		3%	
4	6%		2%		2%		6%	
5	9%		3%		4%		8%	
6	12%	9	7%	47	8%	50	8%	9
7	10%		9%		7%		11%	
8	18%	24	18%	56	10%	74	20%	40
9	23%		11%		45%		29%	
10	16%		5%		22%		11%	

OTL Factor 11: Class size

Class sizes in Grade 3 varied immensely. On average, class sizes in Ethiopia, Guatemala, Honduras, and Nepal were 46, 27, 29, and 44 students per class, respectively. At the school level, class sizes varied from 28–77 in Ethiopia, 10–40 in Guatemala, 14–49 in Honduras, and 16–104 in Nepal. In Ethiopia, five schools had class sizes larger than 50 students, with three containing more than 60 students per class. In Guatemala, only one school had a student/teacher ratio greater than 40:1 and in Honduras, only three schools had classes with over 45 students. Class sizes in the sample schools were generally appropriate and, while higher than the average for OECD countries, were within the range of 25–48 students per class seen in countries included in the World Education Indicator Study (OECD, 2006).

OTL Factor 12: School support

EQUIP2 research on complementary education programs found that school support services were critical in allowing community schools to produce learning results similar to or better than their government school counterparts (DeStefano, et al., 2007).

This study shows that schools in Ethiopia reported a greater number of visits than the other three countries, whether from Save the Children staff or from local and regional education officials (see Table 3). On average, schools reported being visited almost twice per month during the school year, with some claiming weekly visits. These numbers of reported visits may be overstated, however. In all four countries, the number of visits reported by principals differed dramatically from the number reported by teachers within the same school.

More important than the number of visits was whether these visits provided any benefit to the school. For example, in Guatemala, visits reportedly focused on classroom management or administrative support rather than instructional support to teachers. In Nepal, the number of reported visits per year was much lower than in Ethiopia and Guatemala. In all cases, school support visits did not correlate with any other study finding.

Policy Implications

Relationships among OTL Factors and Student Learning Outcomes

Research by Bloom (1968), Gettinger (1984), Benavot and Amadio (2004), and Abadzi (2007) indicate that to improve students' learning levels, a basic opportunity to learn must exist. This opportunity to learn requires that teachers and students are present and spend most of the day engaged in learning activities. Research further indicates that too much instructional time is wasted in classrooms due to poor classroom management, disciplinary action, long transition times, and teacher and student absenteeism (Stallings, (1973, 1980); and Aronsen, et al, 1998). Educators must make more efficient use of the existing time available for instruction.

The main findings across Ethiopia, Guatemala, Honduras, and Nepal suggest that: a) a great deal of instructional time was lost; b) little, if any, classroom reading instruction took place; c) textbook use was suspect; and d) students' reading abilities were low.

Given the small amount of classroom time spent on reading and the lack of a reading curriculum, it was not surprising that students' reading abilities were low. While students across all four countries knew letters and tested reasonably well on the CAP, reading fluency scores were well below the acceptable threshold of 60 wpm in Ethiopia, Guatemala, and Nepal. In fact, in both Ethiopia and Nepal, large percentages of students in Grade 3 were unable to read at all. Their performance on the CAP implies, however, that even those students unable to read received some basic instruction in lower primary grades. Unfortunately, this instruction was not sufficient to make the transition from an introduction to written material to actual reading.



The OTL profile and subsequent analysis from these country cases provides useful insights into the relationship between schools, instruction, and learning: Unless there is a minimum amount of instruction, specifically in reading, then a relationship between opportunity to learn and learning is unlikely. Across all four studies, schools varied in teacher and student attendance, textbook possession and use, class size, and number of support visits by education personnel. Major variations existed across all OTL factors included in this study's research framework. Despite these variations, in all countries there was a consistently small amount of reading instruction, little exposure to text, and a lack of opportunity for students to read (rates were higher in Honduras, however). This finding has important policy implications for those implementing programs or making education sector policy. The following discussion divides these implications into two categories: School Organization and Management and Classroom Environment and Instruction.

Policy Implications: School Organization and Management

School organization and management deals with areas such as school leadership, governance, accountability, and support, to which OTL Factors 1–6 directly relate. Increasing the amount of learning time available to students is a first step in improving their overall academic performance in reading (Snow, et al., 1998).

As noted by Aronson, et al. (1998), literature on the relationship between time and learning dates back to the 1970s and typically focuses on empirical, data-based research; policy reports combining educational theory and empirical research; or anecdotal, experientially-based periodical publications, usually explaining schools' experiences implementing a certain time-related policy. Over the last several decades, school districts throughout the United States have studied extensions to the school day and year that provide more allocated time to students. However, research by Holsinger (1982), Nelson (1990), and Aronson, et al. (1998) has provided mixed findings about the influence of allocated and engaged time on student learning. Research has revealed little or no relationship between allocated time and student achievement; some relationship between engaged time and achievement; and a larger relationship between academic time and achievement. In short, time does matter and is predictive of academic achievement if properly used for engaged academic activities (Latham 1985 as cited in Hollowood, et al., 1994; Brophy and Good, 1986; Greenwood, 1991). Research by Stallings (1973), Aronson, et al. (1998), and Abadzi (2007a, 2009) also show that the amount of allocated and engaged time is greatly reduced by time spent on non-academic activities, transition to classes or topics, poor classroom management, and disciplinary activities.

Schools in Ethiopia, Guatemala, Honduras, and Nepal, used, on average, less than half of the available opportunity to learn and even less of available instructional time. This loss of opportunity to learn was due primarily to off-task teachers and students. Further, this study found that students being off task was directly tied to teachers being off task. The loss of time from teachers and students being off task in the classroom ranged from 30 to 40 days per year. Outside of the classroom, students lost the equivalent of between

30 and 75 days of instruction due to school closures, teacher and student absenteeism, and late starts and extended recess.

Within the classroom, students spent the majority of the time doing seatwork, debating or discussing subjects, and copying. A limited amount of reading (10–20 percent of observations) took place in the lower primary grades and an even smaller percentage of classroom time involved students reading or analyzing text. While sufficient textbooks seemed to exist in most classrooms, researchers witnessed limited use of these books. In none of the four countries was there evidence of a reading curriculum.

When addressing time variables, the implications for policy reform need to distinguish between factors that are easily addressed and those that require more complicated policy interventions. OTL factors such as school closures, absenteeism, and daily time loss are more easily corrected than ensuring quality time-on-task, teacher training, and support services, because policy-makers can engage communities in solving these problems and holding schools accountable. EQUIP2 complementary education research supports the idea that community run and supported programs that engage parents help ensure that schools are open and teachers and students are present.

Based on the results of this study, ensuring that schools are open 100 percent of the official time, that the school day starts and ends on time, and that teachers and students are present would add 39 days of instruction in Ethiopia, 32 days in Guatemala, 30 days in Honduras, and more than 50 days in Nepal. In Guatemala, ensuring that the schools open on time and that recess is kept to 30 minutes would add an additional 49 days of instruction. Even if the quality of instruction were held constant, it is likely that this increase in learning time would improve student learning outcomes.

Policy Implications: Classroom Environment and Instruction

Decades of school improvement work have focused on helping children learn through interventions such as teacher training and support and improved pedagogical methods. Yet, school quality still poses a challenge for educators and policy-makers alike. Students lose important instructional time and often lack the learning materials necessary to improve performance. The answer to improving school quality and learning at times seems elusive. Where should policy-makers and educators invest their resources? How should they prioritize interventions? While investments in improving factors such as school opening, start and end times, and absenteeism can often be addressed with improved management of the school day, creating real improvements in the classroom and instruction is often more difficult. The following discussion provides insights into interventions that could improve the classroom environment and help children learn.

Textbook Availability and Use

Across all four countries, 63–84 percent of students had textbooks, on average. Yet, the use of textbooks was fairly limited, especially in Ethiopia and Guatemala. In Guatemala, textbooks often sat on shelves unused and six schools had no textbooks for students. Snow, et al. (1998) indicate that in the early grades, factors such as time, materials, and resources should support both daily independent reading of texts (selected based



on student interest) and daily assisted reading and rereading of more difficult texts that advance students' linguistic abilities. This approach to reading was rarely seen in classroom observations.

The availability and use of textbooks has important policy implications. First, as noted by Snow, et al. (1998) and Bruns, et al. (1999), textbooks should not be provided without helping teachers integrate these books into their instructional practice. Training to effectively use textbooks should include pedagogically sound approaches such as activity centers that emphasize word use and structure, silent reading of story books, and peer reading.

Second, language arts books should include stories and texts that allow students to practice reading. This study found that the content in language class textbooks in Ethiopia and Nepal was limited. Examples of text that children could read were few and failed to engage children's imaginations and excite them about learning to read.

Finally, while most students in the study's schools had textbooks, the observed use was fairly low, and in some classrooms, essentially non-existent. The CARE and Save the Children programs, invested in delivering books to schools. This research demonstrates that this alone falls short of ensuring that the textbooks are used in classrooms. Further, the amount of educational benefit from textbook use was unclear given their insufficient number of reading passages, particularly in Ethiopia and Nepal.

Practice reading is critical for early grade students to learn to read. Snow, et al. (1998) points out that students should have storybooks that are below their frustration level (to encourage reading), and students should practice frequently. If practice reading is essential for literacy among lower primary grade students, then books that provide interesting stories should also be present and used in the classroom. There was a dramatic shortage of local language story books in the three multi-lingual countries in this study.

International development organizations and developing country governments need to recognize the lack of children's storybooks as a missing ingredient in promoting literacy. Learning to read will always be an uphill battle in environments devoid of interesting reading material. Projects, programs, and policy need to recognize that the creation of literate environments and the development of a culture of reading are as important as the need to focus on better in-school reading instruction. Projects, programs, and policy also need to ensure that the provision of storybooks is accompanied by their use, something almost never observed in this study. In Guatemala, Save the Children developed Mayan storybooks; however, these books were often locked in the principal's office. This is a prime example of a potentially useful intervention undermined because of a lack of knowledge and encouragement.

Linking Teacher Training to Literacy Acquisition Strategies

Linked to the idea of promoting the proper use of books in classrooms is the prevailing approach to teacher in-service training and support. The programs included in this study invested considerable resources to train teachers. Too often, that training was in the form of off-site workshops. These workshops may or may not introduce teachers to useful pedagogical innovations, classroom management practices, and progressive concepts such as child-centered or active learning. However, independent of the content, the model of teacher development that relies on teachers receiving instruction in a general area and transferring this knowledge into practice should be discredited, as noted by Villegas-Reimers (2003). Instead, a behavior change approach is needed that identifies the specific classroom-based practices needed by teachers, and breaks down these practices into manageable increments of behavior change. This help must consist of the chance to practice in a safe environment, clear benefits to teachers exhibiting the new behavior, consistent evaluation and feedback, and supportive organizational cultures within schools and communities that encourage these behaviors.

Observations in all four countries indicated fairly low time-on-task and a consistent lack of engaging instruction in the early grades. In particular, the study found a lack of instruction tailored to the acquisition of the foundational aspects of literacy. Behavior changes for teachers should improve time-on-task, specifically in literacy acquisition-related activities. This could be as simple as creating time for reading: teachers reading to students, students reading to students, and students reading by themselves. More importantly, early primary teachers need to learn the fundamental elements of teaching reading (e.g., sound–letter correspondence, oral blending of sounds to read words, sight vocabulary) and need specific classroom practices that reinforce these elements. Classroom practices must link to the use of textbooks and other reading materials to improve learning and engagement of students. These strategies also need to be consistently applied by teachers in the classroom.

The implication for policy-makers is twofold. First, classrooms must be equipped with additional materials such as easels, storybooks, and supplies for students to create reading materials. More important is the linkage between the provision of these new materials and teacher training and support to ensure they are used in ways that help students learn to read. In this lies a more complex set of investments with unclear financial trade-offs that should be carefully examined in each context.

Providing Remedial or Accelerated Support

Schools also need help developing remedial strategies given the high percentages of students found in this study who were unable to read or read at low levels of fluency in Grade 3. Vaughn and Linan-Thompson (2004) write that students should learn to read by the end of their first year in school. Many of the students in this study were not reaching that goal. Unless specific strategies are deployed to ensure those students learn to read, they will fall further behind. Introducing interventions such as accelerated learning programs, after-school tutoring, and special classes for students who are behind



are strategies that need to be deployed more systematically in schools similar to those in this study.

Using Assessment to Inform Instruction

Linked to the idea of providing remedial support to students who are behind is the ability to assess students' literacy levels and identify those who are acquiring the building blocks of literacy and those who are not. The Ed Data II project continues to improve the Early Grade Reading Assessment employed in this study, demonstrating its utility in a variety of settings and languages. Such tools need to be used more systematically, not only to gauge whether learning is occurring, but also to allow teachers to spot check their students' progress. EGRA can help teachers deploy instructional interventions that respond to their students' needs, including identifying students needing significant remedial support.

The OTL profile includes reading fluency an indicator of school effectiveness. This profile provides a tool that could be used to contextualize the information about learning outcomes provided by EGRA. The OTL profile provides educators, program managers, and policy-makers with useful, time-relevant data about variations among schools across the 12 OTL factors. This set of school effectiveness data can allow more targeted support where assistance is needed. For example, one school may have high time-on-task percentages, but high teacher absentee rates. This knowledge could help a community or education official focus on the specific issue at the school, in this case determining why teachers are consistently absent. The OTL profile would allow individualized support to schools by allowing supervisors to collect school-relevant data.

School Support Services

EQUIP2 complementary education research found that school support services were a critical in the effectiveness and cost-effectiveness of complementary models. However, it is clear from these four cases that the investments in school support were translating into neither improved opportunities to learn nor better learning outcomes for students. If schools receiving ongoing support are unable to implement the changes that lead to better use of time, then how can one expect schools to meet these challenges on their own? Support resources need to be devoted to instruction, in particular to instruction in reading. Unless there is a greater focus on instructional rather than administrative support, visits to schools by officials will continue to have limited impact on the actual opportunity to learn and learning outcomes obtained in schools.

Conclusion

While there are trade-offs and political challenges to each of these implications, it is important that educators begin to look at concrete ways to ensure that students learn to read. The OTL profile can serve as a useful tool to gauge students' progress. As an evaluative tool, the profile allows ministries of education to see school variation at the district, region, or national levels and target appropriate interventions according to need. For example, schools in one region may consistently start late, causing a loss of instructional time that simply requires better supervision to ensure on-time

starts. Another region may face extreme losses due to off-task teachers and students. Understanding these nuanced differences can help target interventions. At the school level, principals and community members can compare their school to a national average, yet understand the variations in their community and region and gauge their progress against other schools. Finally, the OTL profile can serve as a tool for communities to improve the accountability, governance, and management of schools.

To better support community efforts to monitor and support schools, EQUIP2 will support the introduction, monitoring, and evaluation of strategies to improve data collection and use of OTL factors through the development of a tool that will help local education officials to easily collect OTL data and track the results over time. Providing tools like these to schools and local officials is just one of many important steps necessary to sustainably enhance children's learning in developing countries.



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